

REMARKS/ARGUMENTS

This application has been reconsidered carefully in light of the Office Action dated as mailed on 18 August 2006. A careful reconsideration of the application by the Examiner in light of the foregoing amendments and the following remarks is respectfully requested.

5 This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

 No additional claim fee is believed due as a result of this Amendment because neither the total number of pending claims nor the number of pending independent claims is believed to exceed the total number and the number of
10 independent claims, respectively, for which fees have previously been paid. If, however, it is determined that such a fee is properly due as a result of this communication, the Commissioner is hereby authorized to charge payment of such fees or credit any overpayment, associated with this communication, to Deposit Account 19-3550.

15 **Amendment to the Specification**

 By the above, the specification has been amended to correct a typographical error that became evident on the further review of application. In

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particular, the description for Example 1, directed to the preparation of copper aminotetrazole hydroxide via the reaction, $\text{Cu}(\text{OH})_2 + \text{CH}_3\text{N}_5$ (5-aminotetrazole) \rightarrow $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH} + \text{H}_2\text{O}$ (designated in the application as “reaction (2)”) has been rewritten consistent therewith to correct an apparent typographical error. No new matter has been added to the application by way this amendment.

Election/Restrictions

The Action identifies claims 14, 15, 24, 25 and 37 as presently withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there presently being no Examiner-acknowledged allowable generic or linking claim.

Claims 1-28 and 34-38 remain in the application with claims 14, 15, 24, 25 and 37 presently withdrawn from consideration.

Claim Rejections - 35 U.S.C. §102 and/or 35 U.S.C. §103

- Claims 1-13, 16-23, 26-28, 34-36 and 38 were rejected under 35 U.S.C. §102(e) as being anticipated by or alternatively under 35 U.S.C. §103(a) as obvious over U.S. Patent 6,517,647 to Yamato (hereinafter “Yamato”).**

Independent claims 1 and 19 (with claims 2-13, 16-18, 34-36 and 38 dependent on claim 1 and with claims 20-23 and 26-28 dependent on claim 19) are directed to specific methods for increasing the burn rate of a gas generant formulation.

Independent claim 1 requires “adding a quantity of at least one metal aminotetrazole **hydroxide** to the gas generant formulation.” (Emphasis added.) Independent claim 19 requires “including a quantity of at least about 1 composition weight percent of copper aminotetrazole **hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$** in the gas generant formulation.” (Emphasis added.)

It is respectfully submitted that Yamato neither shows nor suggests the addition of a **metal aminotetrazole hydroxide** or the inclusion of **copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$** to or in a gas generant formulation, as required by the claimed invention.

While the Action states that Yamato discloses a gas generating composition which includes guanidine nitrate, 5-aminotetrazole, and basic copper or zinc nitrate and alleges that the “claimed compounds” are “formed from the combination of 5-aminotetrazole and basic copper or zinc nitrate” it is respectfully submitted that the metal aminotetrazole **hydroxides** are not formed “from the combination of 5-aminotetrazole and basic copper or zinc nitrate” as has been alleged in the Action. More particularly, “**metal aminotetrazole hydroxide**” and “**copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$** ”, as required by independent claims 1 and 19, respectively, are not formed “from the

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combination of 5-aminotetrazole and basic copper or zinc nitrate". Moreover , the addition of a "metal aminotetrazole hydroxide" and the inclusion of "copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ ", as required by independent claims 1 and 19, respectively, are not shown or suggest by Yamato.

In view of the above, reconsideration and withdrawal of the subject rejections are requested.

It is additionally noted that at least certain of the dependent claims include additional limitations which are believed to render such claims further patentable over the prior art of record. For example, claims 2, 3, and 4, require that after the addition, the at least one metal aminotetrazole hydroxide is present in the gas generant formulation in a relative amount of at least about 1 wt.%, 5 wt.%, and 10 wt.%, respectively. Claim 5 requires, that after the addition, the at least one metal aminotetrazole hydroxide is present in the gas generant formulation in a relative amount of no more than about 25 wt.%.

Clearly, as Yamato fails to show or suggest the addition of metal aminotetrazole hydroxides, Yamato does NOT show or suggest such addition in the claimed relative amounts.

Claim 6 requires that the added metal aminotetrazole hydroxide is selected from the group consisting of copper aminotetrazole hydroxide, zinc aminotetrazole hydroxide and combinations thereof. Claim 7 requires that the added metal aminotetrazole hydroxide is copper aminotetrazole hydroxide. Claims 8, 9, and 10 are dependent on claim 7 and further require that after the addition, the copper aminotetrazole hydroxide is present in the gas generant formulation in a relative amount of at least about 1 wt.%, 5 wt.%, and 10 wt.%, respectively. Claim 11, also dependent on claim 7 further requires that after the addition, the copper aminotetrazole hydroxide is present in the gas generant formulation in a relative amount of no more than about 25 wt.%. Claim 12 is dependent on claim 7 and further requires that the copper aminotetrazole hydroxide has an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_3)\text{OH}$. Claim 13 is also dependent on claim 7 and further requires that the copper aminotetrazole hydroxide is formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole.

As Yamato fails to show or suggest the addition of metal aminotetrazole hydroxides, Yamato clearly does NOT show or suggest the addition of such particular metal aminotetrazole hydroxides, the addition of copper aminotetrazole hydroxide in the claimed relative amounts, the addition of copper

aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$, nor the addition of copper aminotetrazole hydroxide formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole, as required by the these claims. In this regards it is specifically noted that while claim 13 has been rejected on the basis of the Yamato as a stand alone document, the Action makes no identification in or citation to Yamato for a showing or suggestion of the addition of copper aminotetrazole hydroxide let alone copper aminotetrazole hydroxide formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole, as required by claim 13. Moreover, Example 4 in the application shows the increased burn rates realized by gas generant formulations in accordance with the invention wherein copper aminotetrazole hydroxide is formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole.

Claims 34-26 and 38 are dependent on claim 1 and further require that the addition of the at least one metal aminotetrazole hydroxide be made to gas generant formulations having certain required materials.

Clearly, as Yamato fails to show or suggest the addition of **metal aminotetrazole hydroxides**, Yamato does **NOT** show or suggest such addition to gas generant formulations as specifically claimed.

Claims 20 and 21 require the inclusion of the copper aminotetrazole hydroxide in the gas generant formulation in a quantity of at least about 5 and 10 composition weight percent, respectively. Claim 22 requires that the copper aminotetrazole hydroxide is included in the gas generant formulation in a quantity of no more than about 25 composition weight percent.

As Yamato fails to show or suggest the inclusion of “copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ ”, Yamato does **NOT** show or suggest such inclusion in the required amounts.

Claim 23 requires that the copper aminotetrazole hydroxide is formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole.

As Yamato fails to show or suggest the inclusion of “copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ ”, Yamato clearly does **NOT** show or suggest the inclusion of copper aminotetrazole hydroxide formed by reacting $\text{Cu}(\text{OH})_2$ with 5-aminotetrazole.

Claims 26-28 are dependent on claim 19 and further require that the inclusion of “copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ ” be to a gas generant formulation having certain required materials.

As Yamato fails to show or suggest the inclusion of “copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ ”, Yamato does **NOT** show or suggest such inclusion in gas generant formulations as specifically claimed.

5 In view thereof, these claims are believed to be further patentable over Yamato and notification to that effect is solicited.

2. **Claims 1-13, 16-23, 26-28, 34-36 and 38 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,143,102 to Mendenhall et al. (hereinafter “Mendenhall”).**

10 As a preliminary matter, it is respectfully noted that both of the inventors on the subject application (i.e., Dr. Mendenhall and Dr. Taylor) are also inventors on Mendenhall.

15 Independent claims 1 and 19 (with claims 2-13, 16-18, 34-36 and 38 dependent on claim 1 and with claims 20-23 and 26-28 dependent on claim 19) are directed to specific methods for increasing the burn rate of a gas generant formulation. Independent claim 1 requires “adding a quantity of at least one metal aminotetrazole hydroxide to the gas generant formulation.” (Emphasis added.) Independent claim 19 requires “including a quantity of at least about 1 composition weight percent of copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ in the gas generant formulation.” (Emphasis added.)

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It is respectfully submitted that Mendenhall neither shows nor suggests the addition of a metal aminotetrazole hydroxide or the inclusion of copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ to or in a gas generant formulation, as required by the claimed invention.

5 While the Action states that Mendenhall discloses a gas generating composition comprising 30-60 % of a fuel including combinations such as guanidine nitrate and tetrazole complexes of copper or zinc and 40-65 % of basic copper nitrate and alleges that the increase in burn rate is “an inherent property of this composition”, it is again noted that independent claim 1 requires “adding a quantity of at least one
10 metal aminotetrazole hydroxide to the gas generant formulation” and independent claim 19 requires “including a quantity of at least about 1 composition weight percent of copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_5)\text{OH}$ in the gas generant formulation.” (Emphasis added.)

15 Metal aminotetrazole hydroxide and copper aminotetrazole hydroxide, as required by the pending claims is neither shown nor suggested by Mendenhall.

 In view thereof, reconsideration and withdrawal of the subject rejections are requested.

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Moreover, as submitted above relative to the rejections based on Yamato, at least certain of the dependent claims include additional limitations which are believed to render such claims further patentable over the prior art of record. As the further limitations of these claims are similarly neither shown nor suggested by Mendenhall, these claims are similarly believed to be further patentable over Mendenhall and notification to that effect is solicited.

Withdrawn Claims

Claims 14, 15, 24, 25 and 37 presently stand withdrawn from consideration.

Claims 14, 15, 37 are dependent on claim 1 and claims 24 and 25 are dependent on claim 19. As submitted above, claims 1 and 19 are believed to be patentable over the prior art of record. Claims 1 and 19 are believed to be generic such that upon the allowance of these claims, Applicants are entitled to consideration of those claims to additional species which are written in dependent form. As submitted above, claims 1 and 19 are believed to be patentable over the prior art of record. In view thereof, previously withdrawn claims 14, 15, 24, 25 and 37 are also believed to be in condition for allowance and notification to that effect is solicited.

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Conclusion

5 It is believed that the above Amendment places all pending claims in condition for allowance and notification to that effect is solicited. However, should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of the application.

Respectfully submitted,



Nick C. Kottis
Registration No. 31,974

Pauley Petersen & Erickson
2800 West Higgins Road; Suite 365
Hoffman Estates, Illinois 60169
TEL (847) 490-1400
FAX (847) 490-1403